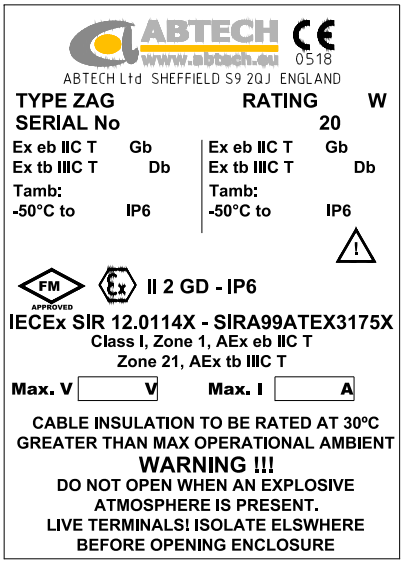
INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS FOR ABTECH 'ZAG' Range Enclosures

IECEx SIR 12.0114X Sira 99ATEX3175X FM 3049212



Marking

The marking shown is for an apparatus certified terminal box.
The maximum power dissipation permitted in this terminal box is marked on the label and identified by RATING……..W.

The ambient temperature range for which this product is suitable is marked on the label and identified by Tamb ……. (°C)

The T rating is variable depending on ambient temperature range and power dissipation. See page 2/3 of these instructions for details.

Enclosures with windows are limited to a maximum operating temperature of +80°C and a maximum ambient temperature of +55°C.

Note: The symbol ⚠ is not always present. When it is present the installer must take particular note of these instructions.

Alternative markings for temperature ratings:

T6 with T_{amb} range of -50°C ≤ Ta ≤ +55°C and T85°C for dust

T5 with T_{amb} range of -50°C ≤ Ta ≤ +70°C and T100°C for dust

T4 with T_{amb} range of -50°C ≤ Ta ≤ +105°C and T135°C for dust

T3 with T_{amb} range of -50°C ≤ Ta ≤ +150°C and T180°C for dust

Note

The ambient temperature range identified on the certification label refers to the enclosure and the terminals fitted within. It does not necessarily refer to the permitted temperature range of any cable entry devices that may be fitted. The user must check that the cable entry devices fitted are suitable for the lowest ambient temperature marked on the certification label and for the maximum permitted operating temperature ('T' rating).

The IP rating identified on the certification label refers only to the enclosure. The user must ensure that the cable entry devices fitted provide an equivalent degree of protection when installed in accordance with their manufacturer's instructions.

Installation

These instructions assume that the required cable entries have been pre-drilled. Cable entries may be threaded. Entries may be drilled on site by a competent person.

Before installation check the permitted operating temperature range of the terminals against the minimum ambient temperature of the box and the T rating of the box. Unsuitable terminals must be replaced prior to cable termination.

1) Using the mounting dimensions provided, either in the product catalogue data sheets or on the drawings supplied, (as part of the project documentation), mark out the positions for the mounting holes on the surface where installation is required.
2) Drill the mounting holes for M4 fixing studs (for size ZAG1 to ZAG8) or for M6 fixing studs (for size ZAG9 to ZAG16) as applicable.
3) Tap thread into mounting holes if required.
4) Place a mounting screw through one mounting hole in the box so that the thread of the screw protrudes from the back of the box. Lift the enclosure into position using such assistance as may be necessary to avoid injury and:
   a) If clearance mounting holes are used, insert the protruding thread through the appropriate clearance hole and secure with a nut on the other side of the mounting surface.
   Or
   b) If threaded holes are used, locate the end of the mounting screw over the thread hole and, using an appropriate screwdriver tighten the screw.
5) Rotate the box to line up the remaining mountings and repeat (4) above fro remaining mounting screws.
6) Install and secure the cable glands in accordance with the manufacturers instructions.

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7) Pull the cables into the box, leaving trailing leads of a length specified by site practice or the site engineer and secure any cable armour in accordance with site practice.
8) Where slotted trunking has been supplied (solid trunking is not permitted) ensure that it is suitable for the proposed T classification of the final certified product. Where the T6 is the proposed rating and no windows are fitted any polymeric or metallic slotted trunking may be used. For other T classifications and where a window is fitted metallic slotted trunking must be used. Trunking may be mounted in any orientation in the box, vertically, horizontally or diagonally.
9) When laying cables into trunking; No more than 50% of the trunking internal area shall be occupied by conductors, when instrumentation currents of 1A or less are carried. All cabling used must be capable of carrying a minimum of 3A.
10) For cables carrying more than 1A - No more than 25% of the trunking internal area shall be occupied by conductors, these shall be de-rated to a maximum of 4A /sq mm. All cabling used must be capable of carrying a minimum of 10% higher current than the rating required.
11) Terminate the cables in the terminals provided in accordance with the requirements of BS EN 60079-14:1997. Consideration must be given to any limitations or special conditions detailed on the certificates for the terminals fitted
12) Secure the lid by closing the lid and tightening the lid fixing screws.

NOTE: If the terminals provided with the enclosure are changed either in type or in quantity the terminal box certification may become invalid. Advice from ABTECH is recommended before any changes are made.

Earthing /Grounding

The enclosure is provided with an external earth/ground connection. This must be connected to the appropriate earth bonding circuit before electrical power is connected to the contents of the enclosure.

An earth connection between the lid and the box is provided. Care must be taken to ensure this is not damaged during installation or maintenance

Operation

1. The lid must be secured using all of the lid screws provided in order to maintain the IP rating. Use a securing torque of 1Nm minimum, 2 Nm maximum (M4) or 3 Nm maximum (M6).
2. No attempt must be made to remove the enclosure lid whilst electrical power is connected to the contents of the enclosure.
3. The enclosure earth/ground facility must be connected to the earth bonding circuit at all times when power is connected to the enclosure.

Maintenance

Routine maintenance is likely to be a requirement of local Health and Safety legislation. The laws of the applicable country must be considered and maintenance checks carried out accordingly.
Additional periodic checks that are advisable to ensure the efficiency of ABTECH range enclosures are:

	Activity	**Frequency**
1	Check that the lid seal is in place and not damaged	Each time the enclosure is opened
2	Check that all lid fixing screws are in place and secured	Each time the enclosure is closed
3	Check that the lid equipotential bonding strap is not frayed or damaged and is secure at both ends	Each time the enclosure is opened
4	Check all earthing/grounding connections are secure	Every 3 years
5	Check that the mounting bolts are tight and free of corrosion	Annually
6	Check the security of all cable glands	Annually
7	Check that all screw clamp terminals are secure	As manufacturers recommendation
8	Check for corrosion of the enclosure	Annually, Every 3 months in corrosive atmospheres

Chemical Attack

The ABTECH ZAG range of enclosures is manufactured using the following materials:

Aluminium – AlSi 12;
Silicone rubber;
316 stainless steel.

Consideration should be given to the environment in which these enclosures are to be used to determine the suitability of these materials to withstand any corrosive agents that may be present.

Static Hazard

The ZAG range enclosures do not present a hazard from static electricity.

Vibration

ZAG range terminal boxes are designed for use in areas subject to normal industrial levels of vibration. They are not designed for use in areas subject to intentional or extreme conditions of vibration.

Protection From Foreseeable Faults

Circuits connected in the enclosure must be externally protected using suitable circuit interruption devices to prevent overloading. Provided the enclosure is correctly installed and maintained there should be no foreseeable faults.

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Specific Conditions of Use:

1) Only Certified Suitably Rated NRTL Listed AEx terminals may be used.
2) The ZAG range of Junction boxes utilize a ZAG Enclosure fitted with suitably rated NRTL Listed AEx terminals. The total dissipated power for the particular application will be calculated in accordance with ANSI/ISA 60079-7:2013 Appendix E and will not exceed the values given in the table below.

ZAG Ref	**Max Power Dissipation (W) Temperature Class, Max Surface Temperature for Gas and Dust and Ta Max.**			
***Maximum Surface Temperature**	**T6 /T85°C**		**T5 /T100°C**	
****Maximum Ambient**	**+40°C**	**+55°C**	**+55°C**	**+70°C**
2	0.9	0.45	0.9	0.45
3	1.2	0.6	1.2	0.6
4	1.7	0.85	1.7	0.85
5	1.5	0.75	1.5	0.75
6	2.2	1.1	2.2	1.1
7	2.9	1.45	2.9	1.45
9	3.4	1.7	3.4	1.7
10	5.4	2.7	5.4	2.7
10/9	5.4	2.7	5.4	2.7
11	5.4	2.7	5.4	2.7
12	8.0	4.0	8.0	4.0
13	10.4	5.2	10.4	5.2
15	9.5	4.75	9.5	4.75
16	14.0	7.0	14.0	7.0

ZAG Ref	**Max Power Dissipation (W) Temperature Class, Max Surface Temperature for Gas and Dust and Ta Max.**			
***Maximum Surface Temperature**	**T4 /T135°C**		**T3 /T180°C**	
****Maximum Ambient**	**+90°C**	**+105°C**	**+135°C**	**+150°C**
2	0.9	0.45	0.9	0.45
3	1.2	0.6	1.2	0.6
4	1.7	0.85	1.7	0.85
5	1.5	0.75	1.5	0.75
6	2.2	1.1	2.2	1.1
7	2.9	1.45	2.9	1.45
9	3.4	1.7	3.4	1.7
10	5.4	2.7	5.4	2.7
10/9	5.4	2.7	5.4	2.7
11	5.4	2.7	5.4	2.7
12	8.0	4.0	8.0	4.0
13	10.4	5.2	10.4	5.2
15	9.5	4.75	9.5	4.75
16	14.0	7.0	14.0	7.0

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